



# CERES Education and Outreach Update

**NASA LaRC, Hampton, VA**

## **The S'COOL - MY NASA DATA Team:**

Educators, Graphic Artists,  
Writers, Editors,  
Programmers, DBAs,  
Managers, Systems  
Admins, Translators  
(SSAI STARS II)

Lin Chambers  
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Jay Madigan  
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Katie Bethea

Marilé Colón Robles  
Penny Oots  
Preston Lewis  
Sarah Crecelius  
Tim Marvel  
Tina Harte  
Tina Rogerson

<https://mynasadata.larc.nasa.gov>

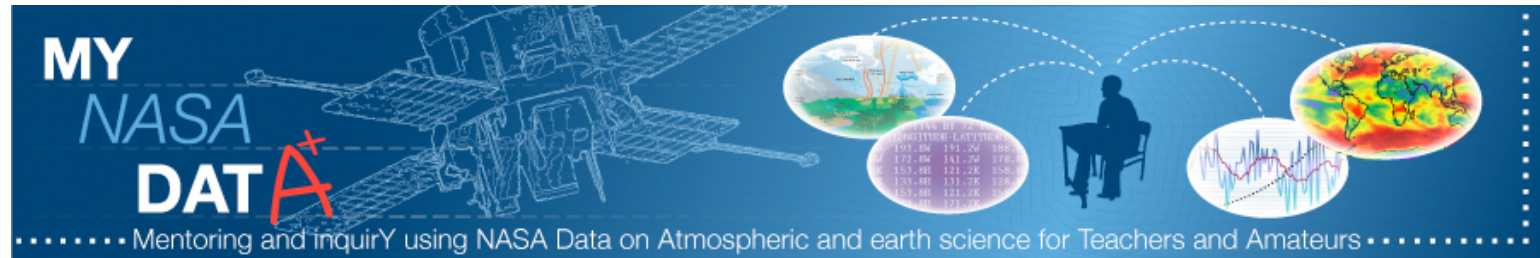
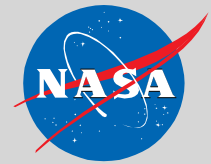
<https://scool.larc.nasa.gov>

<https://science-edu.larc.nasa.gov>

Email us at: [scool@lists.larc.nasa.gov](mailto:scool@lists.larc.nasa.gov) or [mynasadata@lists.larc.nasa.gov](mailto:mynasadata@lists.larc.nasa.gov)

## CERES Science Team Meeting

## MY NASA DATA: Overview



- Involve students in real science.
- Enable K-12 teachers and students, as well as citizen scientists, to explore the large volumes of data that NASA collects about the Earth from space.
- *Students use scientific inquiry and math skills as they access and display microsets of the Earth System.*

## MY NASA DATA Provides access to CERES:

Lessons

Projects/Ideas

Data Visualization

Workshops/Training

Partnership with Educators

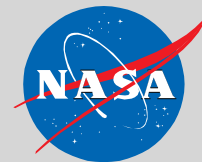
Educational Resources

A Climate Education Portal

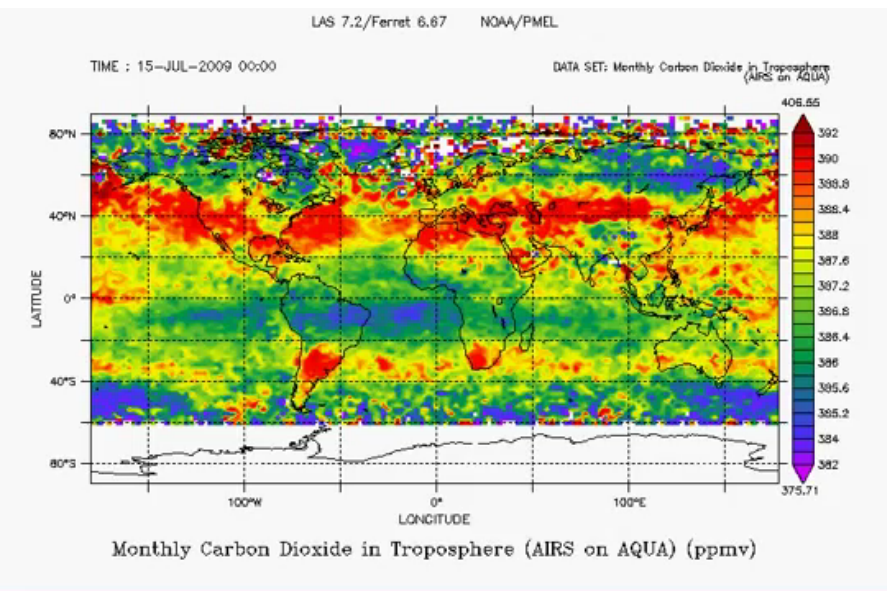
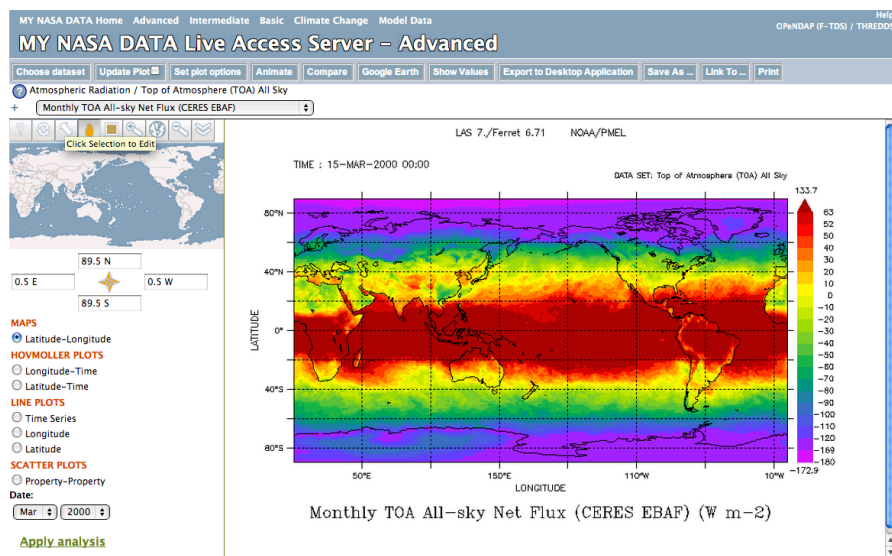
Cross-mission EPO tool

Access to Scientists

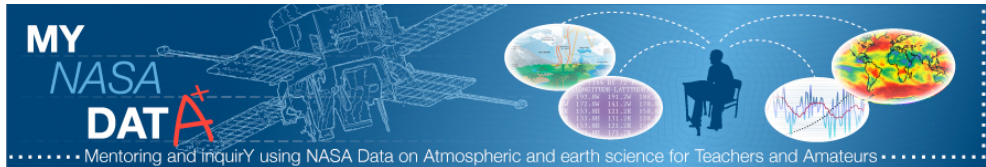
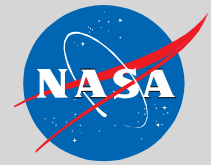
A True Scientific Experience



- CERES Data Visualization
- CALPSO, AMSR-E, MISR Data
- New Depth/Animations Functions
- Over 20 new parameters added, and more on the way



National Aeronautics and Space Administration  
**MY NASA DATA Website Make Over**



### What is MND?

MY NASA DATA (MND) is a tool that allows anyone to make use of satellite data that was previously unavailable. Through the use of MND's Live Access Server (LAS) a multitude of charts, plots and graphs can be generated using a wide variety of constraints. This site provides a large number of lesson plans with a wide variety of topics, all with the students in mind. Not only can you use our lesson plans, you can use the LAS to improve the ones that you are currently implementing in your classroom.

**UNDER CONSTRUCTION**  
Visit the old site: [MY NASA DATA - Old Site](#)

### MY NASA DATA

Home

Live Access Server

Lesson Plans

Data Sources

### Mission

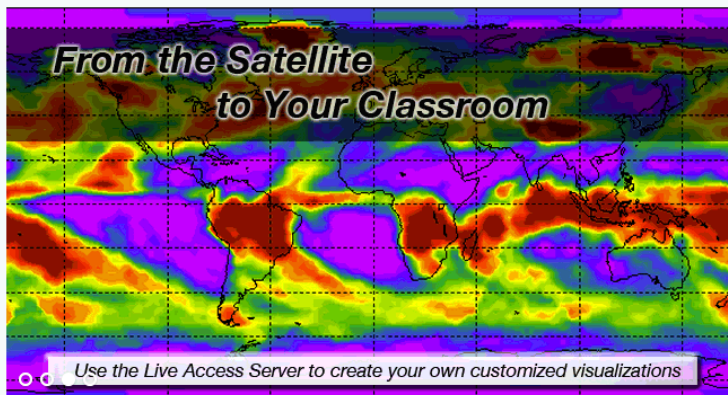
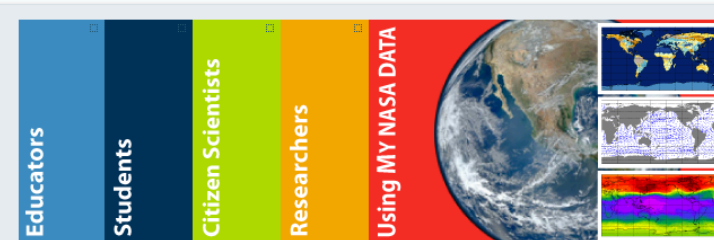
NASA Mission Advert

Observe Your World

Conferences

Meet the Team

Google™ Custom Search



### News from MY NASA DATA, the Science Directorate, and S'COOL

[NASA Educators Online Network is offering Free Webinar Series throughout the Month of October \(2012\).](#)

[It's here, Earth Science Week has arrived and We have the updated schedule of events!](#)

[A big fish in a small pond no longer...](#)

[Meet the Team: Bryan Fabbri](#)

[NASA Earth Science Week: Discovering Careers in the Earth Sciences](#)

MY NASA DATA(MND)'s new look has put a new spin on data visualization, science concepts, and educational resources.

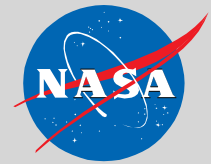
- **Easy to navigate**
- **Accessible**
- **Geared towards the user**

When you visit our site you can discover and enjoy the resources that are most relevant to your needs. Content is divided into 5 main categories:

- **Educators (3 grade divisions/ related content)**
- **Students (3 grade divisions/ related content)**
- **Citizen Scientists**
- **Researchers**
- **Using MND**



# MY NASA DATA: CERES, Aqua, and Terra

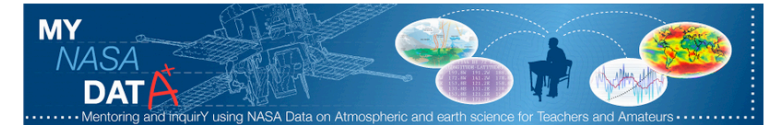


- Lessons ~30
- Projects
- Multi-media
- Data
- Live Access Server
- Albedo, Fluxes (EBAF & TRMM)
- Surface Scene Type
- CO2 AIRS on AQUA

Pageviews

105.10%

373,928 vs 182,319



[View lesson with Standards](#)

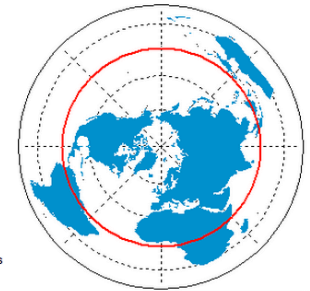
[View lesson without Standards](#)

**Circle the Earth - Explore Surface Types on a Journey around Earth**

**Purpose:** To use CERES percent coverage surface data with a world map in locating landmasses and bodies of water at Earth's Equator.

**Grade Level:** 4 - 12

**Estimated Time for Completing Activity:** One 50-minute class period



**Learning Outcomes:**

- Locating map locations using latitude and longitude coordinates
- Applying percentage to determine land surface characteristics
- Using a microset of satellite data to investigate surface characteristics

Teacher Feedback



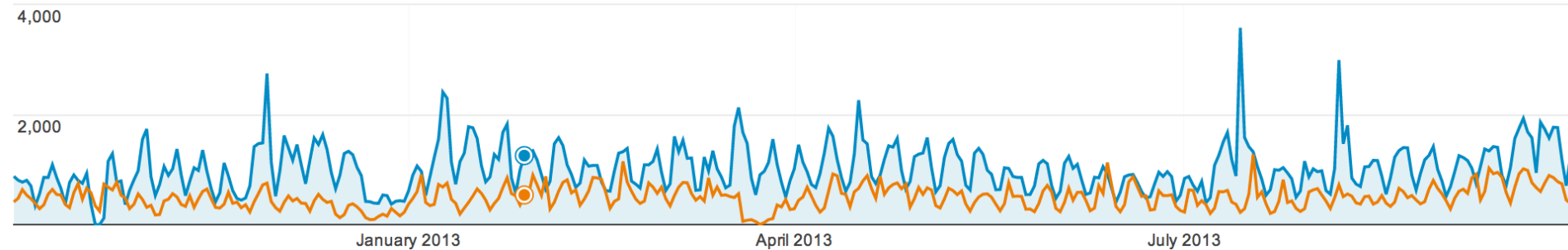
**National Standards:**

- **Geography:** Places and Regions
- **Geography:** The World in Spatial Terms
- **Math:** Algebra
- **Math:** Connections
- **Math:** Geometry
- **Math:** Number and Operations
- **Science Content:** A Science as Inquiry
- **Science Content:** D Earth and Space Science
- **Science Content:** E Science and Technology

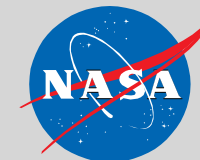
## Lesson Content: Current vs. Last Period

Oct 1, 2012 - Sep 30, 2013: ● Pageviews

Oct 2, 2011 - Sep 30, 2012: ● Pageviews



National Aeronautics and Space Administration  
**MND Metrics – FY2013**



**Oct 1, 2012 - Sep 30, 2013**

Visits by Country / Territory

Visits

Visits

**191,459**

% of Total: 100.00% (191,459)

Unique Visitors

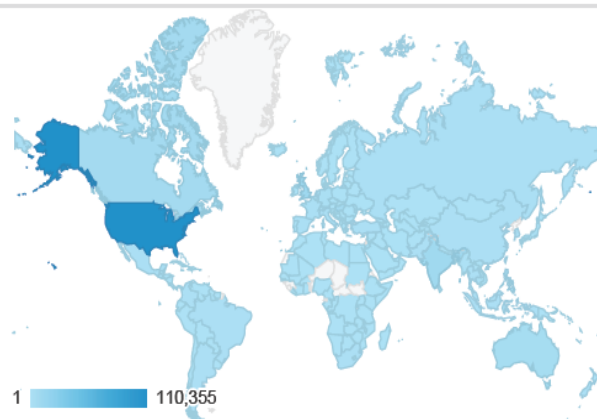
**157,503**

% of Total: 100.00% (157,503)

Pageviews

**373,928**

% of Total: 100.00% (373,928)

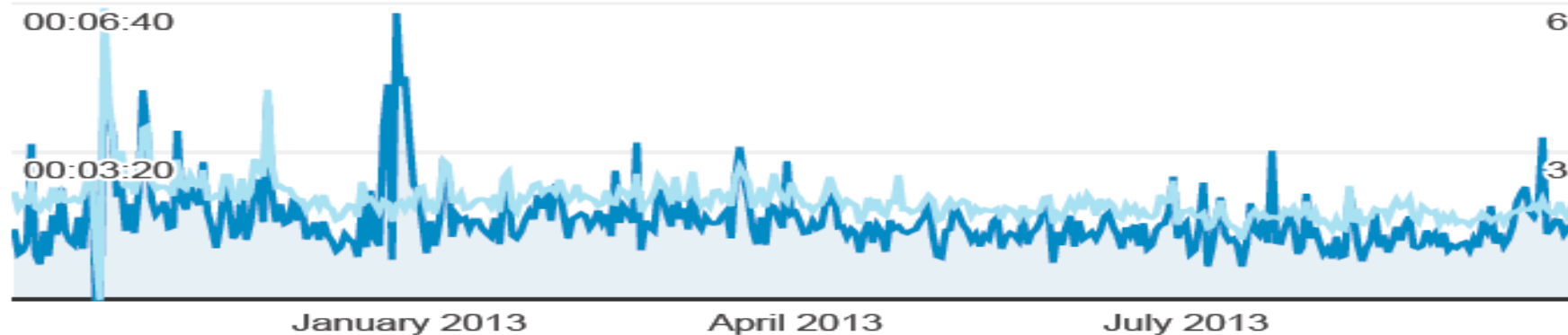


Country / Territory	Visits
United States	110,355
United Kingdom	9,949
India	8,806
Canada	7,118
Hungary	6,710
Australia	4,648
Philippines	4,233
(not set)	2,381
Singapore	1,979
Germany	1,740

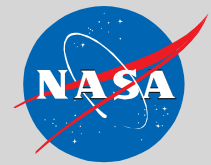
1. US
2. UK
3. India
4. Canada
5. Hungary

**Avg. Visit Duration and Pages / Visit**

● Avg. Visit Duration ● Pages / Visit

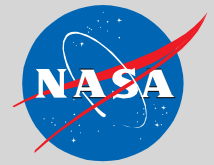


# Student Cloud Observations Online (S'COOL)



- Education and Public Outreach arm of CERES
- Backbone of Terra/Aqua formal education effort
- A simple way to involve K-12 students in authentic science
- A source of validation data for the CERES cloud retrievals

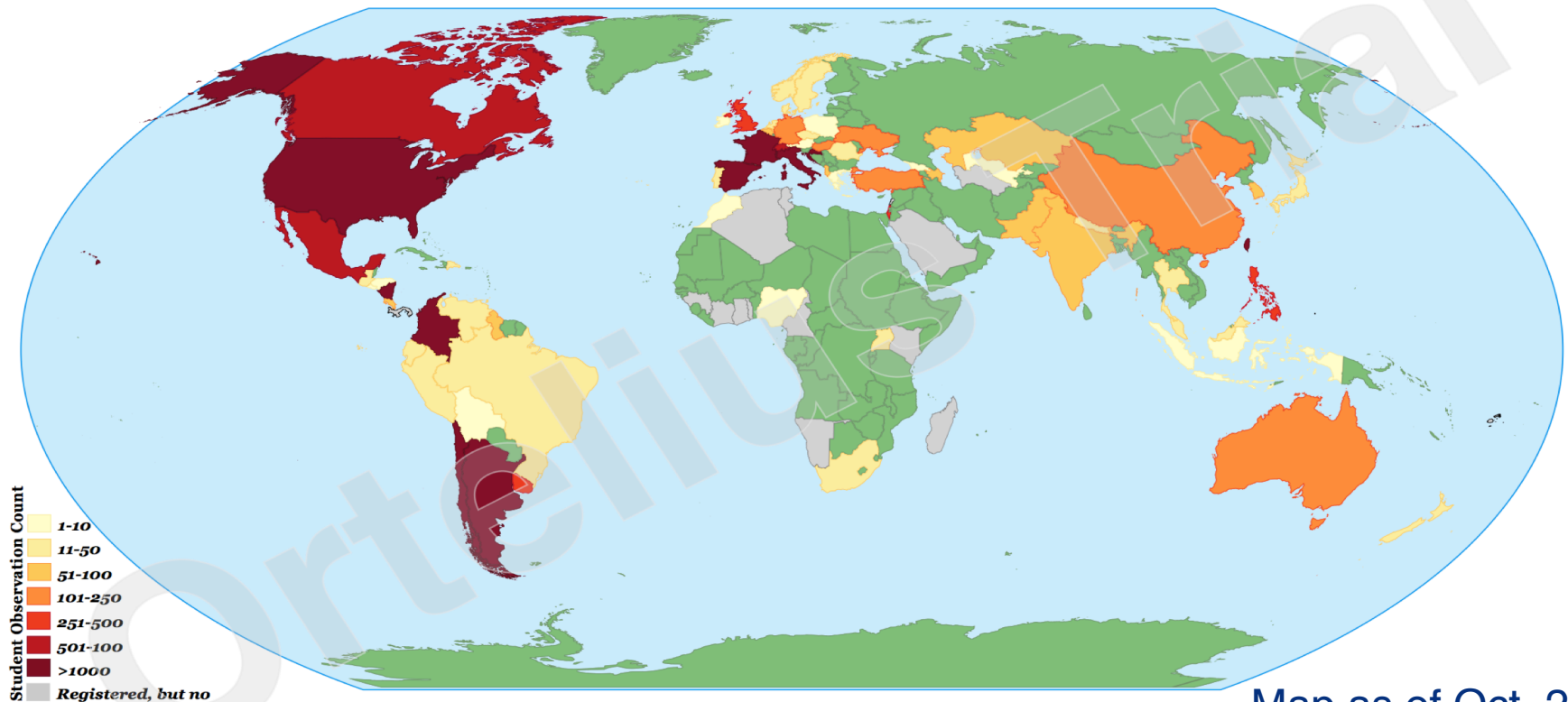
<http://scool.larc.nasa.gov>



## S'COOL Project Statistics

- > 120,737 observations from 67 countries and all 50 states
- New countries participation (Rover): Uganda
- 76% of S'COOL participants are from USA, 48% (includes Rover) of our collected observations are from the US (76% no Rover, 64% including Rover, 56% only Rover).
- > 3,979 registered participants and 695 distinct Rover observers from 86 countries.

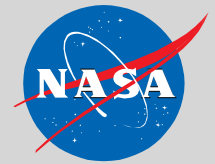
### S'COOL Participant Map



Map as of Oct. 2013



## Impact Measures



### States “Top Five”

- PA 12%
- VA 4%
- CA 3%
- PR 2%
- NH 2%

### Countries “Top Five”

- USA 7.5% ↑
- Colombia 6.8% ↑
- Argentina 8.0% ↑
- France 10.8% ↑
- Taiwan 12.8% ↑

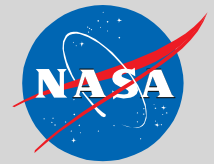
### States “Bottom Five”

- Guam
- Virgin Islands
- North Dakota
- Wyoming
- Maine

### Stats This Year

- S’COOL Registrations 176
- ROVER Recommendations 74
- Material 53

\*States, no change since last meeting

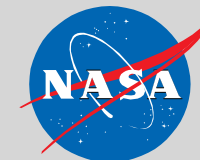


## **Database of observations - as of Oct. 27<sup>th</sup>, 2013**

- > 63,342 satellite correspondences (1017 match both)  
For 56% of ground observations (including Rover)
  - > 3,979 registered participants, 695 distinct Rover Observers  
44% (including Rover) submitted data
  - 86 countries participating in the S'COOL Project
    - data from 62 countries (72%)
  - Recent feature: NPP satellite matching coming in 2014!
- S'COOL have 2,371 ground observations where NPP was selected as the satellite passing over.

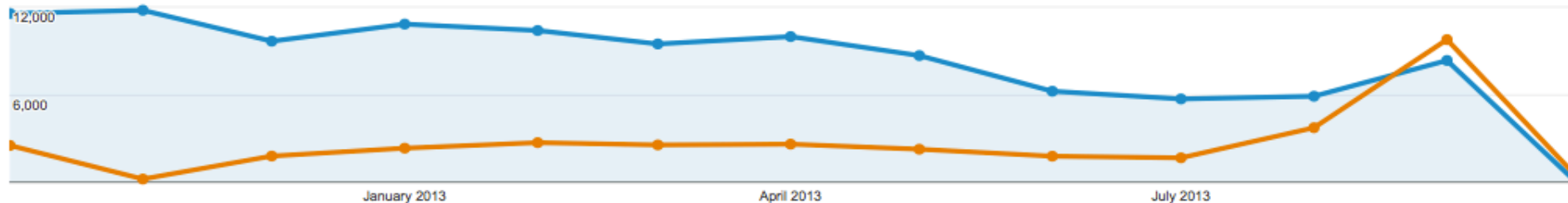
# National Aeronautics and Space Administration

## S'COOL Metrics – FY2013



Oct 1, 2012 - Oct 1, 2013: Visits

Oct 1, 2011 - Oct 1, 2012: Visits



**87,821 people visited this site**

Visits

**214.02%**

108,549 vs 34,567



Unique Visitors

**268.04%**

87,821 vs 23,862



Pageviews

**261.85%**

253,081 vs 69,941



Pages / Visit

**15.23%**

2.33 vs 2.02



Avg. Visit Duration

**-8.92%**

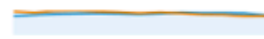
00:01:50 vs 00:02:01



Bounce Rate

**-0.98%**

65.79% vs 66.44%



% New Visits

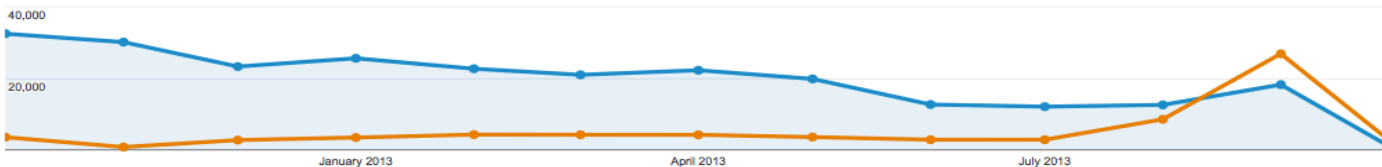
**18.17%**

80.48% vs 68.11%



Oct 1, 2012 - Oct 1, 2013: Pageviews

Oct 1, 2011 - Oct 1, 2012: Pageviews



**Pages on this site were viewed a total of 253,081 times**

Pageviews

**261.85%**

253,081 vs 69,941



Unique Pageviews

**266.76%**

163,307 vs 44,527



Avg. Time on Page

**-30.00%**

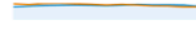
00:01:23 vs 00:01:58



Bounce Rate

**-0.98%**

65.79% vs 66.44%



% Exit

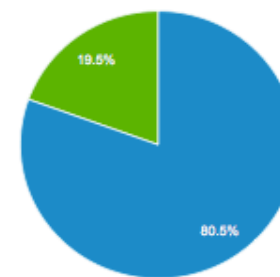
**-13.22%**

42.89% vs 49.42%

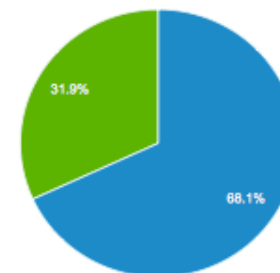


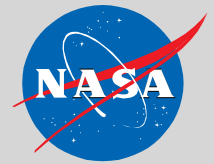
■ New Visitor ■ Returning Visitor

Oct 1, 2012 - Oct 1, 2013



Oct 1, 2011 - Oct 1, 2012



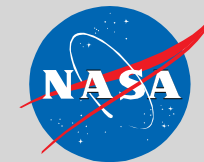


# S'COOL Data Analysis

## Code Analysis; Nearest footprint vs. an Average of footprints (2012 Aqua and Terra)

Parameters: Cloud Frequency, Layer Count, Satellite Comparison, Cloud Cover





# S'COOL Data Analysis

There is little difference between Avg. vs. Nearest, Cloud Cover leans towards Avg. code

		Ground report				
		No cloud	Clear	Partly Cloudy	Mostly Cloudy	Overcast
Sat report	No Cloud					
	Clear		39	31	3	10
	Partly		87	181	180	82
	Mostly		28	196	461	376
	Overcast		10	80	376	801

Total Cases with Cloud	2941	Percentages
Complete agreement	1482	50.39
Off by 1 Cloud Cover Class	1246	42.37
Off by 2 Classes	193	6.56
Off by 3 Classes	20	0.68

Aqua-Avg. Footprint

		Ground report				
		No cloud	Clear	Partly Cloudy	Mostly Cloudy	Overcast
Sat report	No Cloud					
	Clear		39	35	22	18
	Partly		76	139	126	93
	Mostly		26	129	314	230
	Overcast		25	190	567	948

Total Cases with Cloud	2977	Percentages
Complete agreement	1440	48.37
Off by 1 Cloud Cover Class	1163	39.07
Off by 2 Classes	331	11.12
Off by 3 Classes	43	1.44

Aqua-Nearest Footprint

		Ground report				
		No cloud	Clear	Partly Cloudy	Mostly Cloudy	Overcast
Sat report	No Cloud					
	Clear		46	39	26	8
	Partly		78	151	184	82
	Mostly		21	102	412	288
	Overcast		6	54	335	629

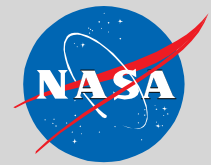
Total Cases with Cloud	2461	Percentages
Complete agreement	1238	50.30
Off by 1 Cloud Cover Class	1026	41.69
Off by 2 Classes	183	7.44
Off by 3 Classes	14	0.57

Terra-Avg. Footprint

		Ground report				
		No cloud	Clear	Partly Cloudy	Mostly Cloudy	Overcast
Sat report	No Cloud					
	Clear		44	58	37	22
	Partly		79	148	226	114
	Mostly		19	74	307	225
	Overcast		12	69	402	678

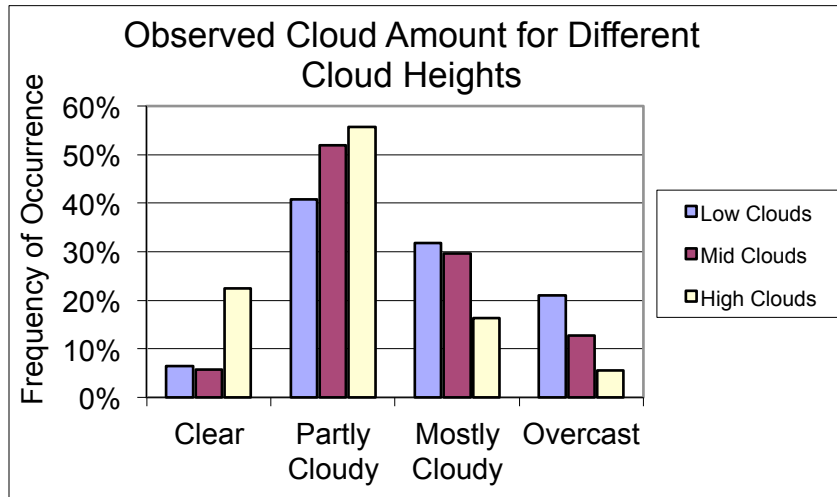
Total Cases with Cloud	2514	Percentages
Complete agreement	1177	46.82
Off by 1 Cloud Cover Class	1064	42.32
Off by 2 Classes	239	9.51
Off by 3 Classes	34	1.35

Terra-Nearest Footprint

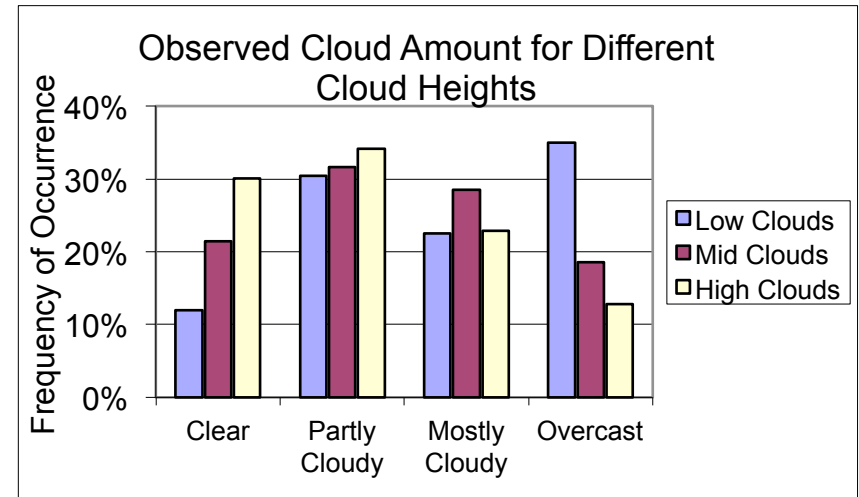


# S'COOL Data Analysis, Next Steps 2012 vs. 2013 Avg.

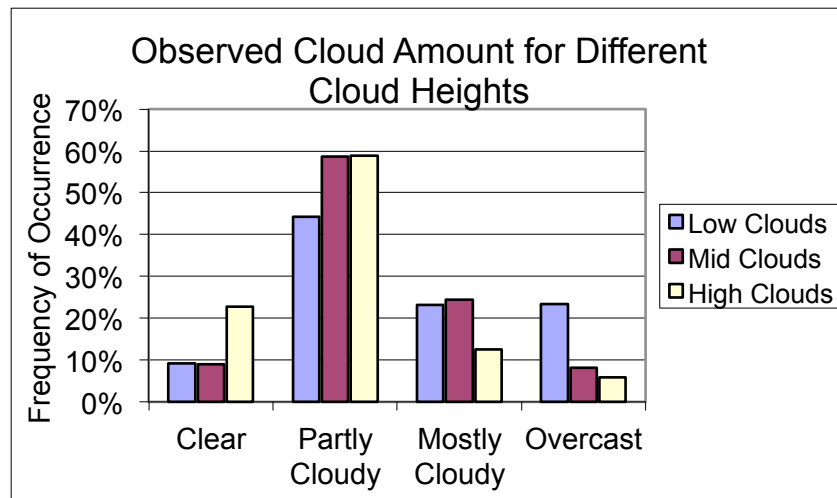
## Cloud Frequency



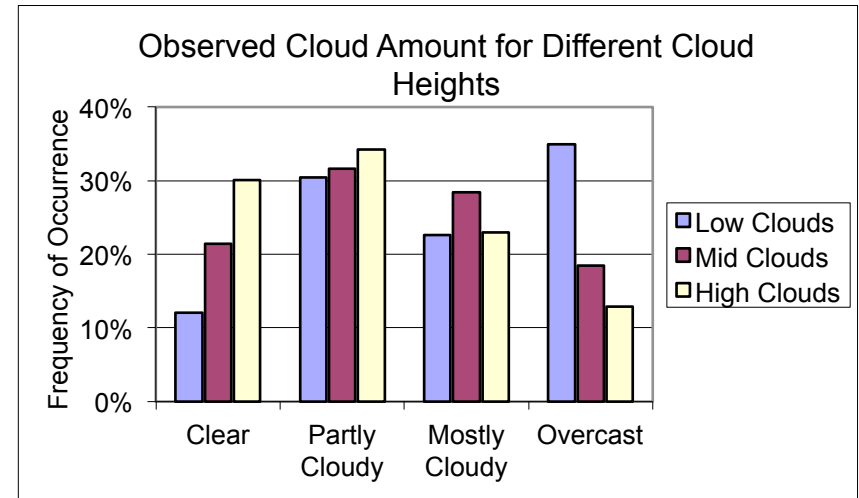
2012 Aqua-Avg. Footprint



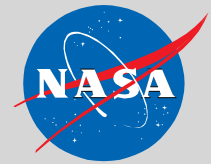
2013 Aqua New Categories



2012 Terra-Avg. Footprint

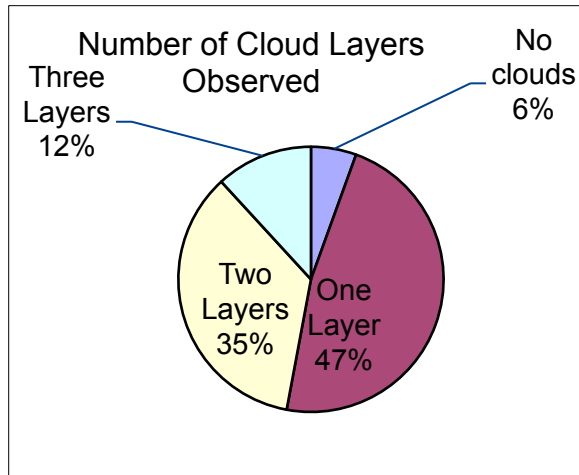


2013 Terra New Categories

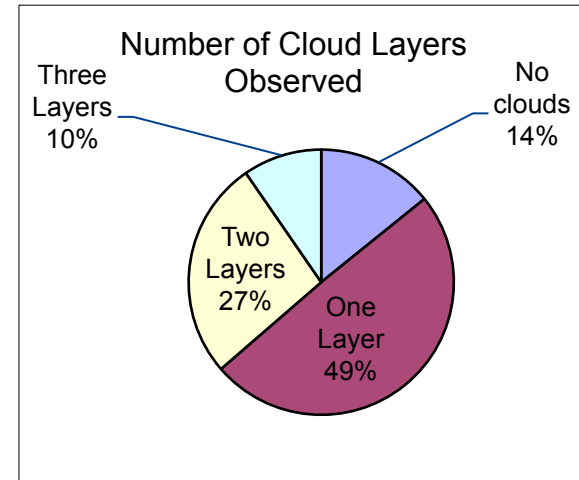


# S'COOL Data Analysis, Next Steps 2012 vs. 2013 Avg.

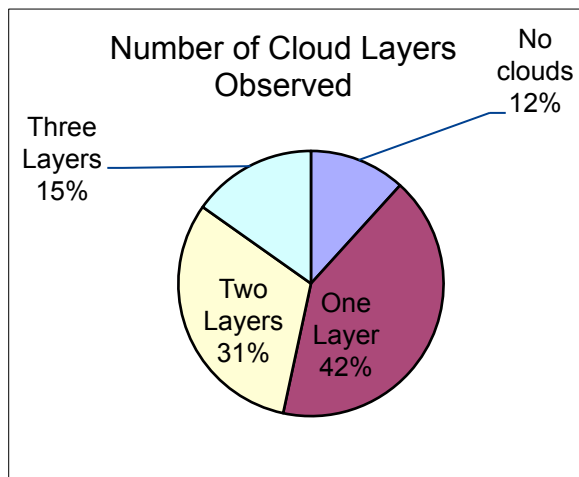
## Layer Count



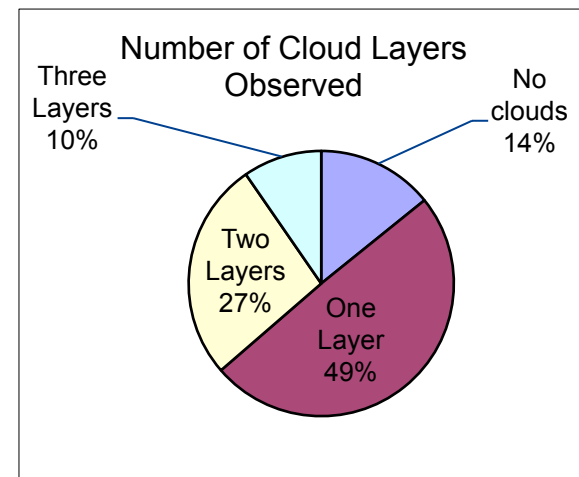
2012 Aqua-Avg. Footprint



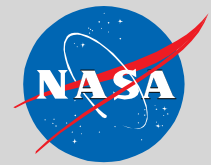
2013 Aqua New Categories



2012 Terra-Avg. Footprint

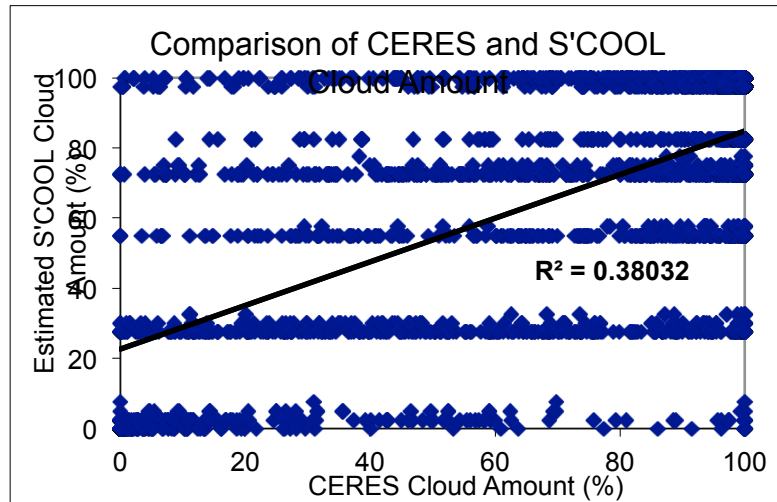


2013 Terra New Categories

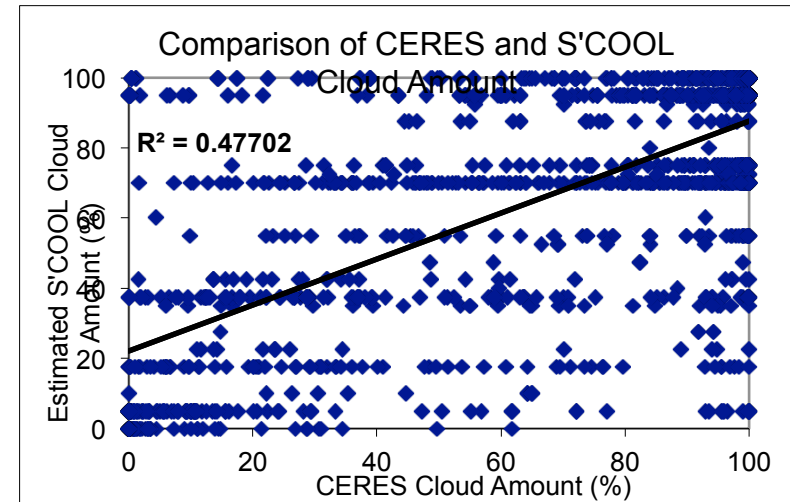


# S'COOL Data Analysis, Next Steps 2012 vs. 2013 Avg.

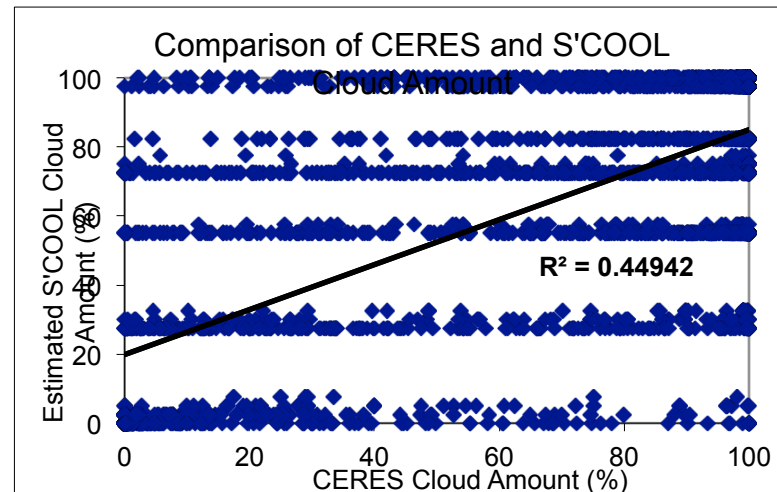
## Sat. Comparison



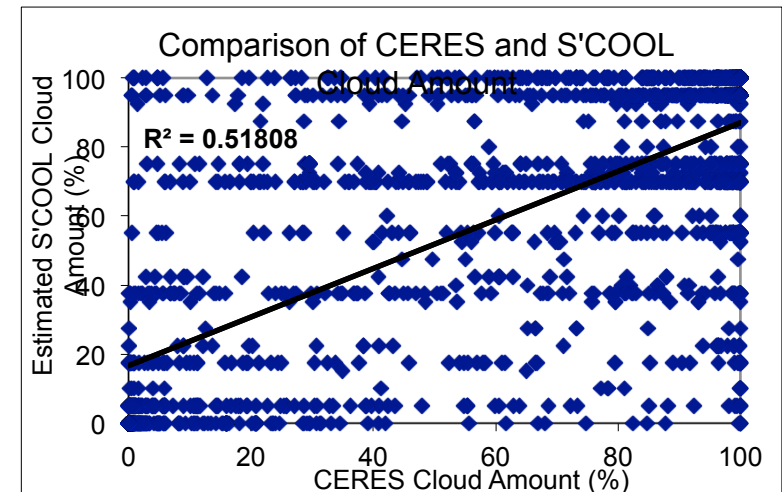
2012 Aqua-Avg. Footprint



2013 Aqua New Categories

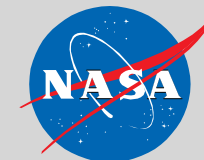


2012 Terra-Avg. Footprint



2013 Terra New Categories





# S'COOL Data Analysis, Next Steps 2012 vs. 2013 Avg.

## Cloud Cover

		Ground report				
		No cloud	Clear	Partly Cloudy	Mostly Cloudy	Overcast
Sat report	No Cloud					
	Clear		39	31	3	10
	Partly		87	181	180	82
	Mostly		28	196	461	376
	Overcast		10	80	376	801

Total Cases with Cloud	2941	Percentages
Complete agreement	1482	50.39
Off by 1 Cloud Cover Class	1246	42.37
Off by 2 Classes	193	6.56
Off by 3 Classes	20	0.68

2012 Aqua-Avg. Footprint

		Ground report					
		No cloud	Clear	Isolated	Scattered	Broken	Overcast
Sat report	No Cloud						
	Clear		52	14	11	5	9
	Isolated		32	27	20	20	15
	Scattered		29	40	47	32	37
	Broken		8	32	69	124	163
	Overcast		19	11	48	145	466

Total Cases with Cloud	1475	Percentages
Complete agreement	716	48.54
Off by 1 Cloud Cover Class	515	34.92
Off by 2 Classes	177	12.00
Off by 4 Classes	13	0.88
Off by 5 Classes	28	1.90

2013 Aqua New Categories

		Ground report				
		No cloud	Clear	Partly Cloudy	Mostly Cloudy	Overcast
Sat report	No Cloud					
	Clear		46	39	26	8
	Partly		78	151	184	82
	Mostly		21	102	412	288
	Overcast		6	54	335	629

Total Cases with Cloud	2461	Percentages
Complete agreement	1238	50.30
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Off by 2 Classes	183	7.44
Off by 3 Classes	14	0.57

2012 Terra-Avg. Footprint

		Ground report					
		No cloud	Clear	Isolated	Scattered	Broken	Overcast
Sat report	No Cloud						
	Clear		65	19	17	9	11
	Isolated		36	15	22	16	23
	Scattered		40	21	56	56	70
	Broken		19	48	79	130	137
	Overcast		20	24	65	164	526

Total Cases with Cloud	1688	Percentages
Complete agreement	792	46.92
Off by 1 Cloud Cover Class	534	31.64
Off by 2 Classes	256	15.17
Off by 4 Classes	28	1.66
Off by 5 Classes	31	1.84

2013 Terra New Categories

# Student Cloud Observations On-Line

## CLOUD REPORT FORM

Observer Information: Rever Nickolas Leggett Email: \_\_\_\_\_  
 Date (use 2011-01-20): Year \_\_\_\_\_ Month \_\_\_\_\_ Day \_\_\_\_\_ Satellite \_\_\_\_\_  
 Local Time (24 Hour Clock): (1:20) Hour \_\_\_\_\_ Minute \_\_\_\_\_ Universal Time (GMT) \_\_\_\_\_ Minute \_\_\_\_\_

### Make A Cloud Observation!

**1** Total Cloud Cover: ☐ No Clouds ☐ Clear (0-10%) ☐ Isolated (10-25%) ☐ Scattered (25-50%) ☐ Broken (50-90%) ☐ Overcast (90-100%)  
 Sky Visibility: ☐ Unusually Clear ☐ Clear ☐ Somewhat Hazy ☐ Very Hazy ☐ Extremely Hazy  
 Sky Color: ☐ Deep Blue ☐ Blue ☐ Light Blue ☐ Pale Blue ☐ Milky

**2**   
 Number of Short Lived \_\_\_\_\_ Number of Persistent \_\_\_\_\_ Number of Persistent Spreading \_\_\_\_\_

**3**  
What do you see?  
**High Level Clouds**

Cloud Type:

- ☐ Cirrus
- ☐ Cirrocumulus
- ☐ Cirrostratus

Cloud Cover:

- ☐ Clear (0-10%)
- ☐ Isolated (10%-25%)
- ☐ Scattered (25%-50%)
- ☐ Broken (50%-90%)
- ☐ Overcast (>90%)

Visual Opacity:

- ☐ Opaque
- ☐ Translucent
- ☐ Transparent

**4**  
What do you see?  
**Mid Level Clouds**

Cloud Type:

- ☐ Altostratus
- ☐ Altocumulus

Cloud Cover:

- ☐ Clear (0-10%)
- ☐ Isolated (10%-25%)
- ☐ Scattered (25%-50%)
- ☐ Broken (50%-90%)
- ☐ Overcast (>90%)

Visual Opacity:

- ☐ Opaque
- ☐ Translucent
- ☐ Transparent

**5**  
What do you see?  
**Low Level Clouds**

Cloud Type:

- ☐ Fog
- ☐ Nimbostratus
- ☐ Cumulonimbus
- ☐ Stratus
- ☐ Cumulus
- ☐ Stratocumulus

Cloud Cover:

- ☐ Clear (0-10%)
- ☐ Isolated (10%-25%)
- ☐ Scattered (25%-50%)
- ☐ Broken (50%-90%)
- ☐ Overcast (>90%)

Visual Opacity:

- ☐ Opaque
- ☐ Translucent
- ☐ Transparent

**6**  
What do you observe?  
**Ground Measurements**

Surface Cover: (Mandatory)

Yes No

- ☐ ☐ Snow/Ice
- ☐ ☐ Standing Water
- ☐ ☐ Muddy
- ☐ ☐ Dry ground
- ☐ ☐ Leaves on Trees
- ☐ ☐ Raining/Snowing

Surface Measurements:

(Optional – you may submit any or all)

Temperature: \_\_\_\_\_ °C or °F

Barometric Pressure: (Select One)

\_\_\_\_\_ hPa   ☐ psi   ☐ inches Hg

☐ mb   ☐ atm   ☐ torr (mm Hg)

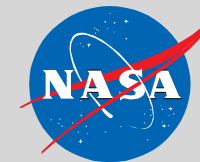
Relative Humidity: \_\_\_\_\_ %

- New format
- One report form for both S'COOL and ROVER
- Addition of GLOBE components sky visibility and sky color to promote future compatibility of S'COOL and GLOBE data sets.
- New Cloud Fraction Categories.
- **UPDATE**

**# obs with sky color = 3,006**

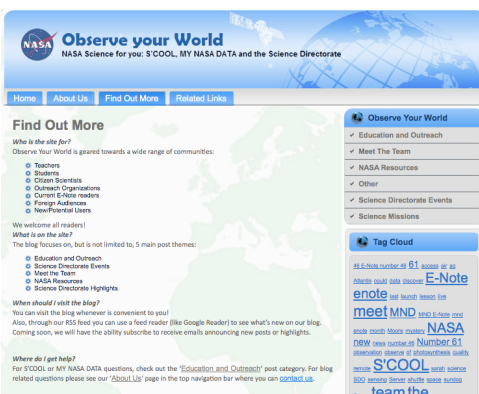
**# obs with sky visibility = 3,563**

**# obs since added = 4,788**



# Observe Your World!

## Blog Highlighting the NASA CERES S'COOL Project, the MY NASA DATA Project, and the Science Directorate Outreach Efforts.



### NPP S'COOL matches are on the way!

October 29, 2013 | Edit

Thank you S'COOL Observers who have continued to send in NPP matches. We have over 2,000 observations to reference when the data is ready.

“We have been focussing on finalizing and analyzing MODIS data from Aqua and Terra. Detailed cloud properties, particularly over the ocean, have been a challenge. NPP has been a lower priority mission, but the additional information for CERES as long-term calibrations of the VIIRS imaging channels is a logical problem. (4) The VIIRS suite of products is particularly those devoted to water vapor and cloud properties. We have a few final products and hope to deliver the analysis code before the NPP cloud properties should begin to be released.”

### Over 29 months of archived posts

### Earth Science Week 2013: Mapping Our World

September 25, 2013



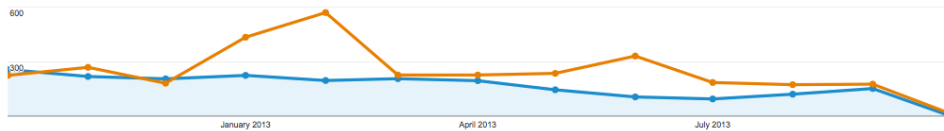
“NASA satellites have been mapping Earth for over 40 years. These global observations of the atmosphere, biosphere, land surface, solid Earth, and ocean enable an improved understanding of the Earth as an integrated system. The images above feature data from over a dozen Earth observation missions”. - Interactive text

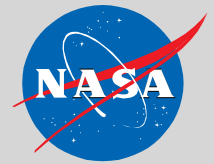
Visit the [NASA Earth Science Week 2013 website](#) to find additional NASA resources, scientist blog features, and more focused on Mapping Our World!

Posted in [Education and Outreach](#), [NASA Resources](#), [Science Missions](#) | Tags: [2013](#), [data](#), [Earth](#), [Mapping](#), [MY NASA](#), [S'COOL](#), [science](#), [week](#), [World](#) | Comments Closed

## Visitation has remained steady this year.

Oct 1, 2012 - Oct 1, 2013: Pageviews  
Oct 1, 2011 - Oct 1, 2012: Pageviews





## S'COOL Observations on MAGIC

P.I.s: ERNIE LEWIS, MIKE REYNOLDS

GPCI is a project comparing data from the major climate models (Marine stratocumulus) MAGIC Marine ARM (atmos rad measurement) GPCI investigation of clouds data to help refine and validate models of Earth's climate,"

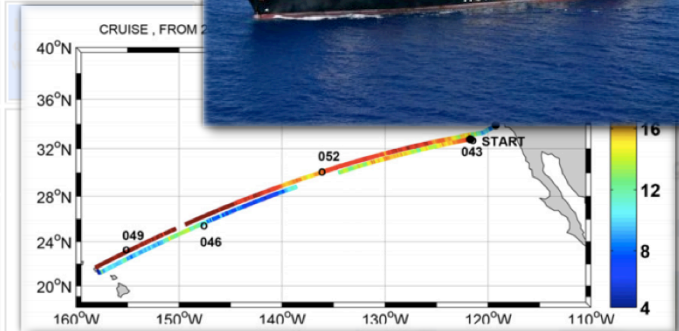
S'COOL has 24 close to complete matches.  
Analysis will be presented under  
Session A015: Boundary Layer  
Clouds and the MAGIC Campaign  
at AGU; poster session.

- Presentation Title: Satellite Cloud Data Validation through MAGIC Ground Observation and the S'COOL
- Project: Scientific Benefits grounded in Citizen Science.
- Session Title: Boundary Layer Clouds and the MAGIC Campaign Posters Session
- Type: Poster
- Date: 12-Dec-2013 Start Time: 08:00 AM End Time: 12:20 PM
- Location: Hall A-C (Moscone South)

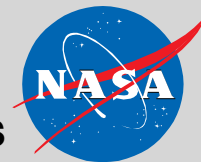
Use Case	Age	Level	Latitude	Longitude	City	State	Country
MAGIC	Adult	Expert	21.31	-157.87	HORIZON SPIRIT		USA

Opacity	Cloud Cover	Type	Visualization	Altitude (km)	Opacity	Cloud Cover	Phase Temp(K)
Transparent	Clear (0% to 5%)	Cirrus					
Opaque	Cloudy (5% to 50%)	Altostratus					
Opaque	Cloudy (50% to 100%)	Stratocumulus					
Contrails:		Persistent: 0 Short-Lived: 0					

Surface Observations	
Snow/Ice	Not Observed
Temperature	26.20 C
Relative Humidity	55.00







## S'COOL/MND Outreach: Ambassadors, Conferences, Workshops



THE GLOBE PROGRAM

### **NSTA Regional Conference, Portland:**

Team Member-Preston Lewis presenting S'COOL and MND Oct 24-26, 2013

### **VACS Homeschool Day, Hampton, VA:**

Team Members-Preston Lewis, Tina Harte and Sarah Crecelius- S'COOL and MND, Jessica Taylor-GLOBE, Kristyn Damadeo - SAGE Sept. 2013

### **NGSS Standard Review, IA:**

Team Member-Tina Harte

### **Upcoming:**

- Virginia Association of Science Teachers Meeting PDI 2013
- Virginia Living Museum Homeschool Day 2013
- NSTA Regional 2013 and National Conference 2014
- AGU 2013/AGU GIFTS Teachers Workshop
- AMS National Conference 2014, weather fest and teacher workshop



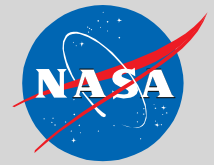
AMERICAN INDIAN SCIENCE  
AND ENGINEERING SOCIETY  
A Universe of Opportunities



Astronomical Society  
of the Pacific

Advancing science literacy through astronomy

## Outreach Involvement

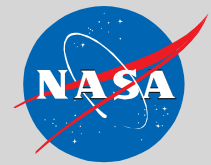


### Other Events:

- Earth Science Week
- NASA NOVA Earth Science resources
- S'COOL Skypes
- DLN Digital Presentations
- ASK NICE
- GLOBE Workshop
- LEARN Workshop
- VASC/VLM Homeschool Day
- 17<sup>th</sup> Anniversary

**Thanks to all  
who participated  
or presented  
S'COOL or MND!**



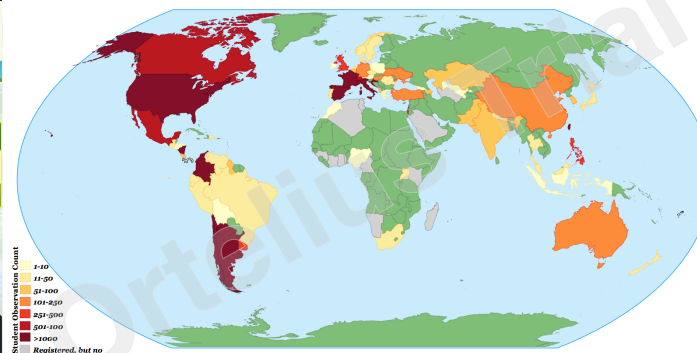


## Students' Cloud Observations On-Line 17<sup>th</sup> Anniversary:

- 17 year on the Project, 7 years with ROVER
- 125,000 Observations hit
- 4,000 Registered Observers, over 700 Rovers
- Launch of New Website
- Sky Art Partnership
- NPP Matches
- GLOBE, sky condition matches

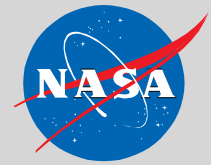


S'COOL Participant Map



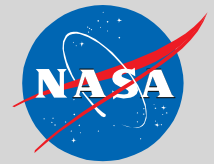


National Aeronautics and Space Administration  
**New Member to the S'COOL Team**



*Marilé Colón Robles is currently a NASA Education Specialist at NASA Langley Research Center. She creates and teaches professional development workshops for pre-service and in-service teachers as well as informal educators all over the country, delivering these opportunities in both English and Spanish. Marilé began her career with NASA in 2010 as an Informal Educator where she curated and developed content for the Hispanic Education Initiative's bilingual website, organized and hosted teacher professional development workshops, museum events, and STEM summer camps. She has also developed interactive STEM games and taught virtual lessons in Spanish to K-12 classrooms all over the country through NASA's Digital Learning Network. Prior to joining NASA, Marilé was a graduate research assistant examining interactions between clouds and aerosols and their impact on Earth's energy balance while earning her graduate degree in Atmospheric Sciences at the University of Illinois at Urbana-Champaign.*

**Partnership with S'COOL for 2 workshop: K-3<sup>rd</sup> and 4<sup>th</sup>-8<sup>th</sup> grades-  
'NASA STEM Spanish Immersion: Head in the clouds edition' – Discover how to use clouds, climate and weather through NASA's S'COOL project to help students discover and learn about physical and earth sciences.**



- **Make S'COOL Rover observations!**
- **Present S'COOL/MND** – scripted materials available
- **Dig into Data**-new opportunity within data analysis (CALIPSO, CloudSat)
- **Translation Services needed!**
- **Serve as resource** for scientific content questions sent in by participants
- **Connect with observers** in every state and >84 countries
- **Contact** any one of the team members for posting to the blog or other information
  - [scool@lists.nasa.gov](mailto:scool@lists.nasa.gov) or [mynasadata@lists.nasa.gov](mailto:mynasadata@lists.nasa.gov)